

What is claimed is:

1. A protective respirator, comprising:

a face mask having an inhalation port through which a wearer of the mask inhales  
5 ambient air;

an air filter for filtering the inhaled ambient air and providing filtered air to said  
inhalation port;

a microphone assembly which is removably detachable from a location between said  
inhalation port and said air filter, said microphone assembly including a spacer for  
10 separating said filter from said inhalation port, said spacer having a body with a passage  
extending the entire length thereof through which filtered air may pass from said filter to  
said inhalation port, said spacer further having a microphone extending therefrom;

an amplifier connected to said microphone for receiving and amplifying sound  
transmitted by said microphone and outputting an amplified signal; and

15 a loudspeaker connected to said amplifier for receiving and radiating said amplified  
signal.

2. The protective respirator of claim 1, wherein said amplifier and said  
loudspeaker form a combined amplifier/loudspeaker assembly.

3. The protective respirator of claim 2, wherein said combined  
amplifier/loudspeaker assembly is located remote from said face mask.

4. The protective respirator of claim 3, wherein said combined  
25 amplifier/loudspeaker assembly is provided with a means for attaching said  
amplifier/loudspeaker assembly to a portion of the wearer's clothing.

5. The protective respirator of claim 3, wherein said spacer of said microphone  
assembly provides an airtight seal between said filter and said face mask.

6. The protective respirator of claim 1, wherein said spacer is provided with an inhale diaphragm, and opposite outer surfaces which lockingly engage, respectively, with said inhalation port and said air filter.

5 7. The protective respirator of claim 6, wherein said spacer is constructed of a plastic material.

8. The protective respirator of claim 7, wherein said spacer is comprised of a first member for connecting to the face mask and a second member for connecting to the  
10 air filter.

9. The protective respirator of claim 2, further comprising a wire for connecting said microphone to said combined amplifier/loudspeaker assembly, and wherein said wire includes strain relief means.

10. A voice transmission system for a protective respirator comprising (i) a face mask having an inhalation port through which a wearer of the mask inhales ambient air; and (ii) an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port, said voice transmission system comprising:

20 a microphone assembly which is removably detachable from a location between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port, said spacer having a body with a passage extending the entire length thereof through which filtered air may pass from said filter to said inhalation port, said spacer further having a microphone extending therefrom;

25 an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal; and

a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.

30 11. The voice transmission system of claim 10, wherein said amplifier and said loudspeaker form a combined amplifier/loudspeaker assembly.

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12. The voice transmission system of claim 11, wherein said combined amplifier/loudspeaker assembly is located remote from said face mask when the voice transmission system is in use.

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13. The voice transmission system of claim 12, wherein said combined amplifier/loudspeaker assembly is provided with a means for attaching said amplifier/loudspeaker assembly to a portion of a wearer's clothing.

10 14. The voice transmission system of claim 12, wherein said spacer of said microphone assembly provides an airtight seal between said filter and said face mask.

15 15. The voice transmission system of claim 14, wherein said spacer is provided with an inhale diaphragm, and opposite outer surfaces which lockingly engage, respectively, with said inhalation port and said air filter.

16. The voice transmission system of claim 15, wherein said spacer is constructed of a plastic material.

20 17. The voice transmission system of claim 16, wherein said spacer is comprised of a first member for connecting to the face mask and a second member for connecting to the air filter.

25 18. The voice transmission system of claim 10, further comprising a wire for connecting said microphone to said combined amplifier/loudspeaker assembly, and wherein said wire includes strain relief means.

19. A protective respirator, comprising:

a face mask having an inhalation port through which a wearer of the mask inhales ambient air;

an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port;

a microphone assembly located between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port and a microphone extending therefrom and into a clean air envelope of said face mask, said spacer providing an airtight seal between said filter and said face mask, said spacer having (i) a first outer surface facing an outer surface of said face mask, and (ii) a second outer surface facing an outer surface of said filter, and wherein said first outer surface and face mask outer surface, and said second outer surface and said filter outer surface, respectively, are provided with complementary geometrical configurations which mate with each other; and

an amplifier/loudspeaker assembly located remote from said microphone and including (i) an amplifier connected to said microphone for receiving and amplifying sound transmitted by said microphone and outputting an amplified signal, and (ii) a loudspeaker connected to said amplifier for receiving and radiating said amplified signal.

20. A voice transmission system for a protective respirator including (i) a face mask having an inhalation port through which a wearer of the mask inhales ambient air; and (ii) an air filter for filtering the inhaled ambient air and providing filtered air to said inhalation port, said voice transmission system comprising:

a microphone assembly adapted to be located between said inhalation port and said air filter, said microphone assembly including a spacer for separating said filter from said inhalation port and a microphone extending therefrom into a clean air envelope of said face mask, said spacer providing an airtight seal between said filter and said face mask, said spacer having (i) a first outer surface facing an outer surface of the face mask, and (ii) a second outer surface facing an outer surface of the filter, and wherein said first outer surface and face mask outer surface, and said second outer surface and said filter outer

